Please find below and/or attached an Office communication concerning this application or proceeding.

| | Application No. | Applicant(s) |
| **Office Action Summary** | 10/081,177 | HECK, LARRY PAUL |
| | Examiner | Art Unit | |
| | Abdelali Serrou | 2626 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)☐ Responsive to communication(s) filed on <u>07 March 2006</u>.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle,* 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

4)☒ Claim(s) <u>1-14,16-20 and 22-28</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-14,16-20 and 22-28</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

## Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>21 February 2002</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date <u>3/10/06</u>.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

## DETAILED ACTION

### *Response to Arguments*

1.     Applicant's arguments filed on 03/07/2006, in response to the office action from

12/08/2005, have been fully considered but they are moot in view of the new ground(s) of

rejection.

2.     As per claim 23, Applicant admits that Sharma discloses "certain scores" (Remarks, page

10), but he is not sure if they are speaker verification scores or speech recognition scores.

Applicant asserts that the scores cannot be both speech recognition and speaker verification

scores.  Examiner respectfully disagrees and notes that Sharma teaches speech recognition (col.

4, lines 32-35, wherein the user speaks a password into the system for verification), and teach

also, speaker or voice verification (col. 3, lines 41-51, wherein the system uses extracted features

of the user's voice for speaker verification).

### *Claim Rejections - 35 USC § 112*

3.     The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the
> subject matter which the applicant regards as his invention.

4.     Claims 1, 7, 17, 23, and 26 are rejected under 35 U.S.C. 112, second paragraph, as being

indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention.  The claims recitation is **vague and indefinite** about how

using the combined speaker verification and speech recognition score is going to help determine

a different best speech recognition hypothesis among alternative candidates.  For, it is unclear

how the best speech recognition hypothesis, chosen based on the speech recognition scores

alone, will be changed by what the speaker verification score is. Only score values rather than

the relative ranking of speech recognition hypotheses (i.e., their hierarchy) can be affected by

combining the speech recognition hypothesis and speech verification scores.

Therefore the examiner interprets the recited best speech recognition hypothesis score as

the score for the best alternative password.

5.      Claims 1, 7, 17, 23, and 26 are rejected under 35 U.S.C. 112, first paragraph, as failing to

comply with the written description requirement. The claim(s) contains subject matter which

was not described in the specification in such a way as to reasonably convey to one skilled in the

relevant art that the inventor(s), at the time the application was filed, had possession of the

claimed invention. There is **no written description** indicating how the speaker verification

score could change the best speech recognition hypothesis hierarchy, and thus alter the best

speech recognition hypothesis choice from that based on the speech recognition scores alone, for

the alternative speech recognition hypotheses.

*Claim Rejections - 35 USC § 103*

6.      The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

7.        Claims 1-28 are rejected under 35 U.S.C 103(a) as being anticipated by Sharma et al.

(Sharma) (U.S 6, 539, 352, issued March 25, 2003) in view of Bi et al. (Bi) (U.S 6, 836, 758

filed on Jan. 9, 2001 and issued on Dec. 28, 2004).

8.        As per claims 1, 7, 11, 23, and 26 Sharma teaches a system, method, and a machine-

readable medium that comprise:

        receiving a first (enrollment) utterance from an intended talker (user during enrollment)

at an integrated speech and speaker recognition system (During enrollment, the user speaks the

password, which is sampled by the system, column 3, line 27, 28);

        generating a voice characteristic model for the user  (Feature extraction is then

performed to extract features of the user's voice for voice characteristics modeling, column 3,

line 41, 42);

        receiving a second (test) utterance from the intended talker at the speaker recognition

system (during verification, the speaker speaks the password into the system, column 4, line 32,

33).

        computing a speaker verification score based on the voice characteristic model associated

with the (test) portion of speech.  In the verification the "test speech" password gets processed in

the same manner as the enrollment phase (column 4, line 33, 34) wherein the voice features are

extracted (column 3, lines 41-43), then the "test speech" password is segmented and scored as

described above in the case of the speech recognition;

        computing a speech recognition score associated with the portion of speech. During the

process of the second utterance "test speech" (column 4, line 28) Sharma et al. teach a system

that also recognizes the password phrase or the "test speech" associated with the portion of the

speech (column 4, lines 27-31), segments the password into subwords and uses multiple

classifiers to score the subwords (column 5, line 10, 11);

generating a combined score by combining the speaker verification score and the speech

recognition score (the scores are fused or combined, column 5, line 10-12);

However, Sharma et al. do not explicitly teach selecting a best hypothesis from a plurality of

hypotheses representing automatic speech recognition results of the second utterance based upon

the combined score.

Bi, in the same field of endeavor do teach selecting a best hypothesis from a plurality of

hypotheses representing automatic speech recognition results of the second utterance (col. 6,

lines 10-24) based on both a speaker verification score and speech recognition score (col. 3, lines

54-59, and col. 2, lines 30-31).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of

the invention was made to incorporate Bi's feature of selecting a best hypothesis from a plurality

of hypotheses representing automatic speech recognition results of the second utterance based

upon the combined scores to the system of Sharma et al., because Bi teaches that this would

provide a system with better recognition accuracy and lower rejection rates than using the results

of only one of the engines (col. 3, lines 64-67).

9.    As per claims 2, 9, 12 and 18, based on the rejection used above, Sharma teaches

processing a portion of speech of the utterance received from the user, wherein the portion of the

speech includes a word (password phrase, column 4, line 65).

8.    As per claims 3, 10, 13, and 19 Sharma teaches altering a search path in Viterbi search

used by the speech recognizer (Viterbi or Dynamic programming (DP) based algorithms are used

to locate the optimal boundaries for the subword segments, column 15, lines 55-57).

10.    As per claims 4, 14, and 20 Sharma teaches the use of a hotword speech recognition to

identify the talker (Key word/key phrase spotting is used to optimally locate the password,

column 2, line 60-61).

11.    As per claims 6, 16, and 22 Sharma teaches voice feature (characteristic) extraction

wherein voice characteristics include voice print, stored in a voice print database (column 6, line

36), a personal profile (column 3, lines 38-40) and linguistic characteristics that are unique to the

talker voice inherent in (Feature extraction is then performed to extract features of the user's

voice, such as pitch, spectral frequencies, intonations, column 3, lines 41-43).

12.    As per claim 8, Sharma teaches a speech input device that comprises cellular, analog, and

digital phone, and voice over internet protocol device (The enrollment speech may be obtained

via a receiver, telephone or other sources, and be received from any transmission media, digital

or analog, including terrestrial links, land lines, satellite, microwave, column 6, lines 44-48).

13.     As per claim 24, Sharma teaches a voice characteristic model such as pitch, spectral

frequencies, and intonations (column 3, lines 42, 43) that are stored in a voice print database

(column 3, line 48, 49) that will serve as model database during verification phase.


14.     As per claim 25, Sharma teaches a method of obtaining the voice characteristic from the

enrollment speech (necessarily including a first portion of the utterance).


15.     As per claim 27, since Sharma teaches a CPU for speech recognition and verification

(column 6, line 63), the system necessarily includes a speech server that comprises the software

entities to execute the application.  Furthermore, to able to process the input speech, a processor,

memory, and a bus are necessary in the system in order to store the software entities and process

the speech.


16.     As per claim 28, Sharma teaches an inherent database connected to the speech server

wherein the voice characteristic model of the talker is stored (An enrollment component is used

to characterize a known user's voice and store the characteristics in a database, so that this

information is available for future comparisons, column 3, lines 23-25).


## Conclusion

17.     The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure. Weideman (U.S 6,292,782) teach speech and voice recognition and verification.

Garudadri et al. (U.S 6,671,669) teach combined engine system and method for voice

recognition.

18.    Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Abdelali Serrou whose telephone number is 571-272-7638. The

examiner can normally be reached on 8:30-5:00.

       If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Talivaldis I. Smits can be reached on 571-272-7628. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

19.    Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A. Serrou
3/30/2006

TALIVALDIS IVARS SMITS
PRIMARY EXAMINER